C-722

Ref. No. 3541

ONKYO® SERVICE MANUAL

COMPACT DISC PLAYER
MODEL C-722

Black and Silver models

BUP, SUP	230V AC, 50Hz
BUW	120/220V AC, 50/60Hz

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PARTS NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

SPECIFICATIONS

Signal readout system:	Optical non-contact
Reading rotation:	About 500 – 200 r.p.m. (constant linear velocity)
Linear velocity:	1.2 –1.4 m/s
Error correction system:	Cross Interleave Reed Solomon code
D/A converter:	1 BIT D/A converter
Sampling frequency:	352.8 kHz (Eight-times oversampling)
Number of channels:	2 (stereo)
Frequency response:	5 Hz – 20 kHz
Total harmonic distortion:	0.005% (at 1 kHz)
Dynamic range:	96 dB
Signal to noise ratio:	100 dB
Channel separation:	90 dB (at 1 kHz)
Wow and Flutter:	Below threshold of measurability
Output level:	2 volts r.m.s.
Power consumption:	12 watts
Power supply rating:	European model: AC 230V, 50Hz Worldwide model: AC 120V and 220V switchable 50/60Hz
Dimensions (W x H x D):	275 × 79 × 308 mm 10-7/8″ × 3-1/8″ × 12-1/8″
Weight:	3.9 kg, 8.6 lbs.

Specifications and external appearance are subject to change without notice because of product improvements.

ONKYO
AUDIO COMPONENTS

C-722

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SERVICE PROCEDURES

1. Safety-check out

After correcting the original service problem,perform the following safety check before releasing the set to the customer:

Connect the insulating-resistance tester between the plug of power supply cord and chassis.

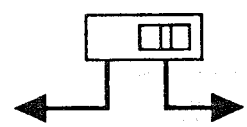
Specifications:More than 10Mohm at 500V.

2. Voltage Selector (Back panel)

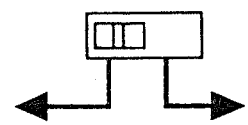
Worldwide models are equipped with a voltage selector to conform with local power supplies.Be sure to set this switch to match the voltage of the power supply in user's area before turning the power switch on.

Voltage is changed by sliding the groove in the switch with a screw driver to the right or left.

Confirm that the switch has been moved all the way to the right or left before turning the power switch on.



at AC120V



at AC220V

CAUTION ON REPLACEMENT OF OPTICAL PICKUP

The laser diode in the optical pickup block is so sensitive to static electricity,surge current and etc, that the components are liable to be broken down or its reliability remarkably deteriorated.

During repair,carefulley take the following precautions. (The following precautions are included in the service parts.)

PRECAUTIONS

1.Ground for the work-desk.
Place a conductive sheet such as a sheet of copper (with inpedance lower than 10MΩ) on the work-desk and place the set on the conductive sheet so that the chassis.

2.Grounding for the test equipment and tools.
Test equipments and toolings should be grounded in order that their ground level is the same the ground of the power source.

3.Grounding for the human body.
Be sure to put on a wrist-strap for grounding whose other end is grounded.
Be particularly careful when the workers wear synthetic fiber clothes, or air is dry.

4.Select a soldering iron that permits no leakage and have the tip of the iron well-grounded.

5.Do not check the laser diode terminals with the probe of a circuit tester or oscilloscope.

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs a laser. Therefore, be sure to follow carefully the instructions below when servicing.

WARNING!!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMMISION, BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 30cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.

Laser Diode Properties

- Material: GaAS/GaAlAs
- Wavelength: 780nm
- Emission Duration: continuous
- Laser output: max. 0.5mW*

*This output is the value measured at a distance about 1.8mm from the objective lens surface on the Optical Pick-up Block.

LASER WARNING LABELS

The label shown below are affixed.

1. **Warning lable**
   This label is located on the chassis.

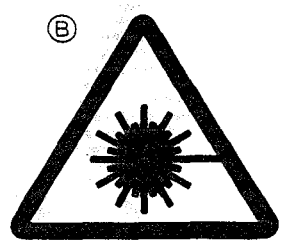
Ⓐ

DANGER —INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCK FAILED OR DEFEATED. AVOID DIRECT EXPOSURE TO BEAM.

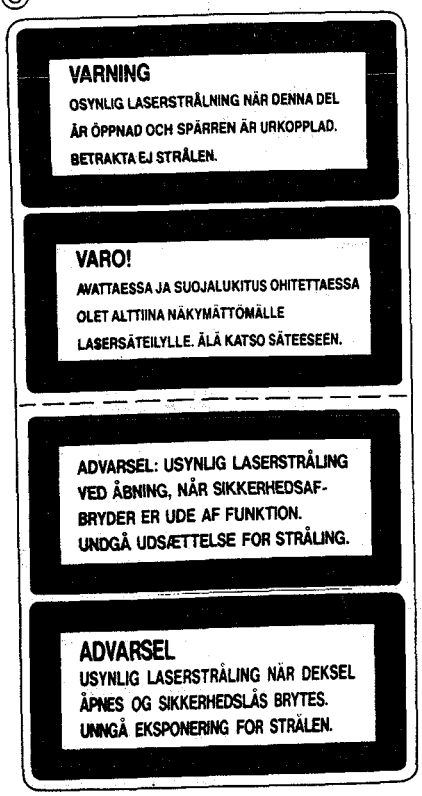
CAUTION —HAZARDOUS LASER AND ELECTROMAGNETIC RADIATION WHEN OPEN AND INTERLOCK DEFEATED.

ATTENTION —RAYONNEMENT LASER ET ELECTROMAGNETIQUE DANGEREUX SI OUVERT AVEC L'ECLENCHEMENT DE SECURITE ANNULE.

Ⓑ

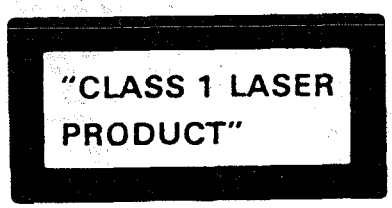


Ⓒ


VARNING
OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.
VARO!
AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAF-BRYDER ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.
ADVARSEL
USYNLIG LASERSTRÅLING NÄR DEKSEL ÅPNES OG SIKKERHEDSLÅS BRYTES. UNNGÅ EKSPONERING FOR STRÅLEN.

Ⓐ : Danger label
Ⓒ : Only 230V model except germany model

2. **Class 1 label**
   This label is located on the left side of top cover.



LUOKAN 1
LASERLAITE

KLASS 1
LASER APPARAT

ADVARSEL

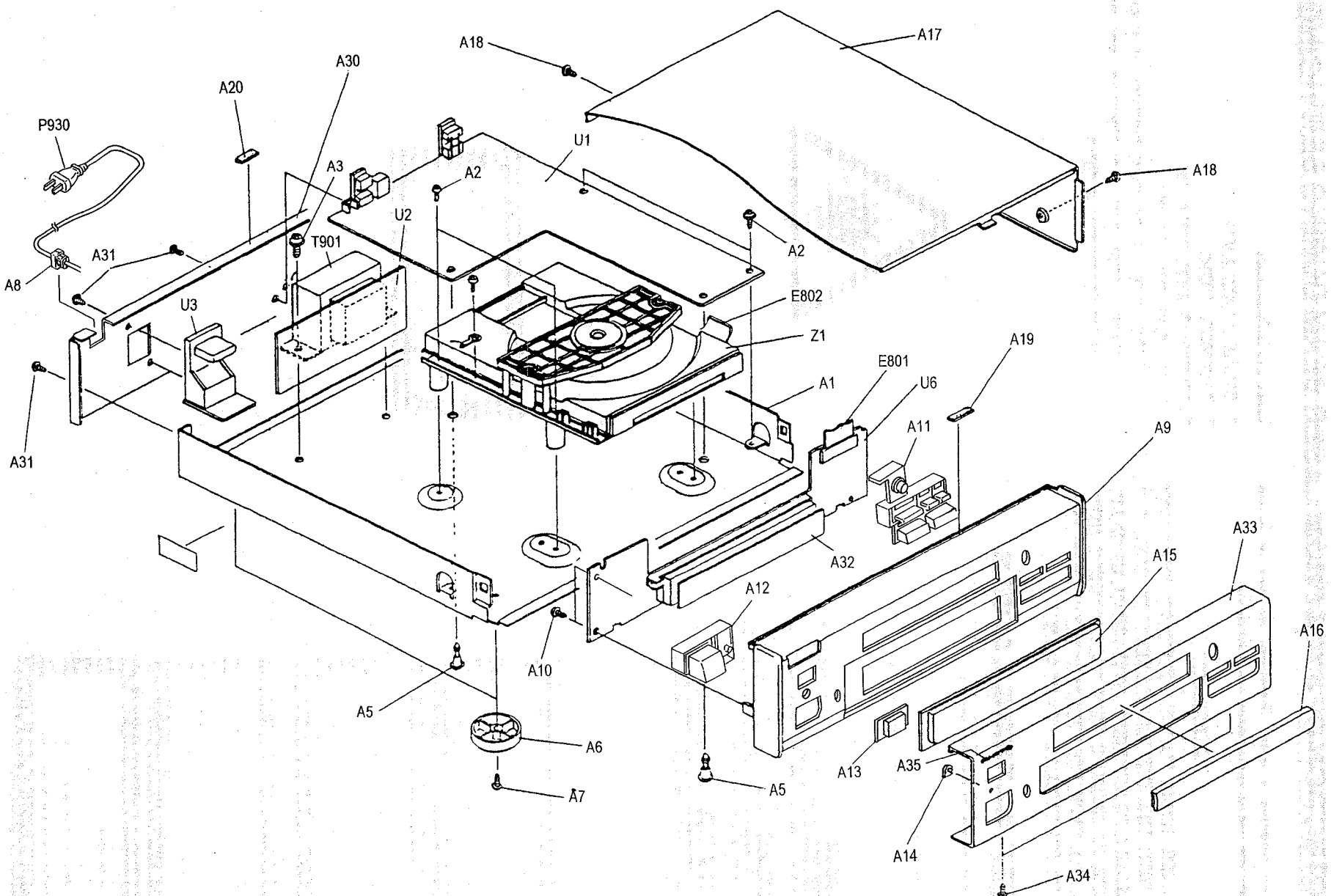
Denna maekning er anbragt på apparatets højre side og indikerer, at apparatet arbejder med laserstråler af klasse 1, hvilket betyder, at der anvendes laserstråler af svageste klasse, og at man ikke på apparatets yderside kan blive udsat for utilladelig kraftig stråling.

APPARATET BØ/R KUN ÅBNES AF FAGFOLK MED SÆRLIGT KENDSKAB TIL APPARATER MED LASERSTRÅLER!

Indvendigt i apparatet er anbragt den her gengivne advarselsmærkning, som advarer imod at foretage sådnne indgreb i apparatet, at man kan komme til at udsaette sig for laserstråling.

VAROITUS! LAITTEEN KÄYTTÄMINEN MUULLA KUIN TÄSSÄ KÄYTTOOHJEESSA MAINTULLA TAVALLA SAATTAA ALTISTAA KÄYTTÄJÄN TURVALLISUUSLUOKAN 1 YLITTÄVÄLLE NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE.

EXPLODED VIEW



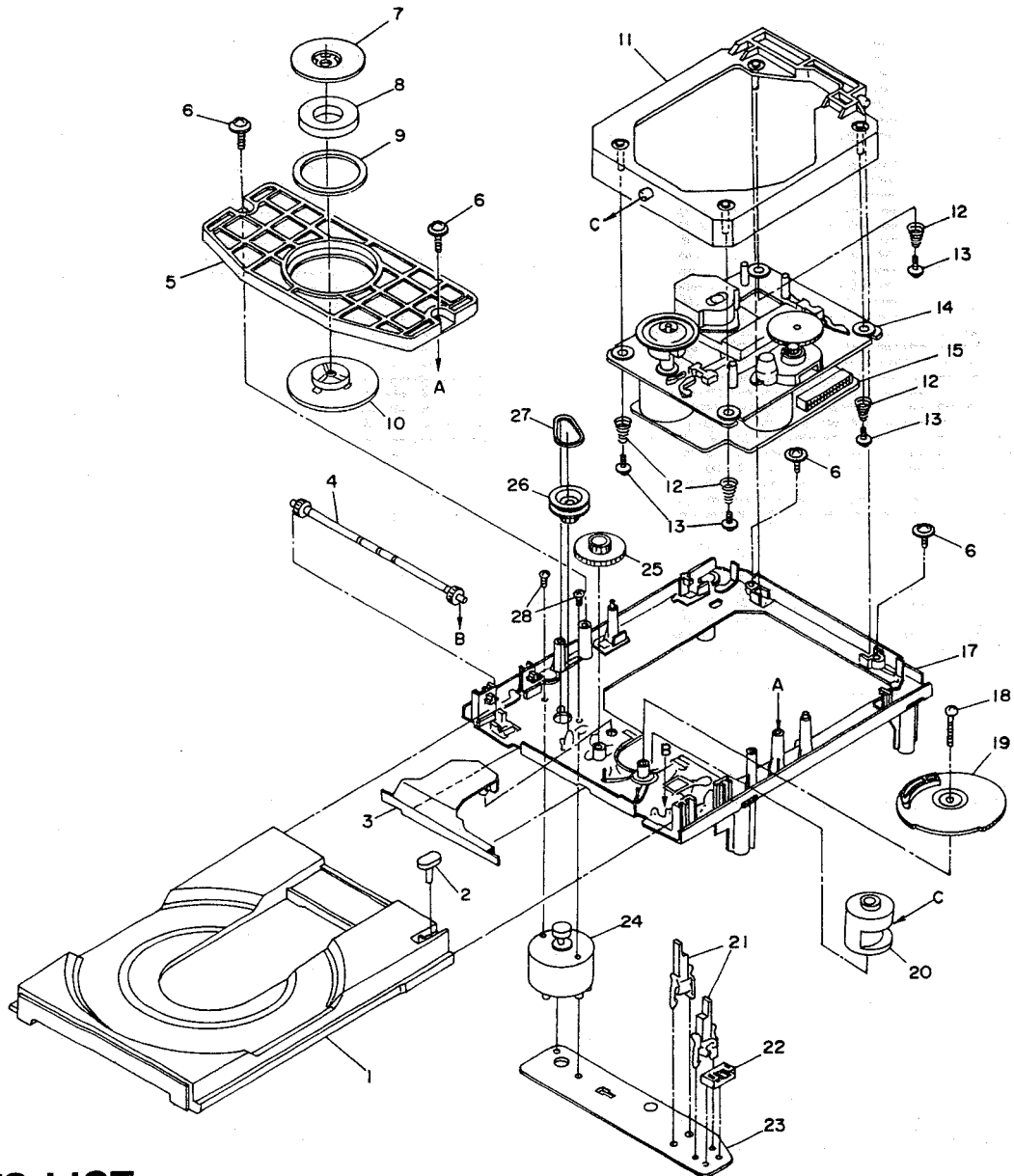
PARTS LIST

REF. NO.	PART NO.	DESCRIPTION
A1	27100311	CHASSIS
A2	838130088	3TTB+8B, SCREW
A3	830440089	4TTC+8C(BC), SCREW
A5	27190428A	KGLS-10RT, HOLDER
A6	27175294Y	LEG AS
A7	838130088	3TTB+8B, SCREW
A8	⚠ 27300750	#2271, CORD BUSHNG
A9	27110929A	FRONT BRACKET <S>
	27110930A	FRONT BRACKET <B>
A10	838130088	3TTB+8B, SCREW
A11	28325344	(PLAY), KNOB AS <S>
	28325345	(PLAY), KNOB AS <B>
A12	28325313	(POWER), KNOB <S>
	28325314	(POWER), KNOB <B>
A13	28191665A	(RE), CLEAR PLATE
A14	28198797	FACET
A15	28191664	CLEAR PLATE
A16	28148342	D00R AS <S>
	28148343	D00R AS <B>
A17	28184579	COVER <S>
	28184656	COVER <B>
A18	838230088	3TTB+8B(Ni), SCREW <S>
	838430088	3TTB+8B(BC), SCREW <B>
A19	28141288	0.8x10x15, CUSHION
A20	28141284	CUSHION
A21	27270146	8x3x0.1, SPACER
A22	29361961	(ALL3), LABEL
A30	27122209	REAR PANEL <except W>
	27122210	REAR PANEL <W>
A31	838430088	3TTB+8B(BC), SCREW
A32	28133341	BACK PLATE <S>
	28133342	BACK PLATE <B>
A33	27211818	FRONT PANEL <S>
	27211819	FRONT PANEL <B>
A34	838430068	3TTB+6B(BC), SCREW

REF. NO.	PART NO.	DESCRIPTION
A35	28135199Y	BADGE
E801	2047301012	NCFC7-301012, FFC
E802	2046221014	NCFC6-221014, FFC
E901	260208	WIRE TIE
F901	⚠ 252075 or	2.5A-SE-EAK, FUSE
	⚠ 252075CC	2.5A-SE-EAK, FUSE
P930	⚠ 253237HIT	AS-CEE, AC CORD
T901	⚠ 2301041	NPT-1220P, POWER TRANSFORMER <Except W>
	⚠ 2301047	NPT-1220DG, POWER TRANSFORMER <W>
U1	1H318583-1A	NAAR-5683-1A
U2	1H318584-1A	NAPS-5684-1A
U4	1H318586-1A	NAPS-5686-1A
U5	1H318587-1B	NASW-5687-1B <W>
U6	1H318588-1A	NADIS-5688-1A
Z1	24800009C	NCD-130S, CD MECHANISM AS

NOTE: <S> Silver model only
<B> Black model only
<W> Worldwide model only
<P> European model only
<T> Asian model only

MECHANISM-EXPLODED VIEW

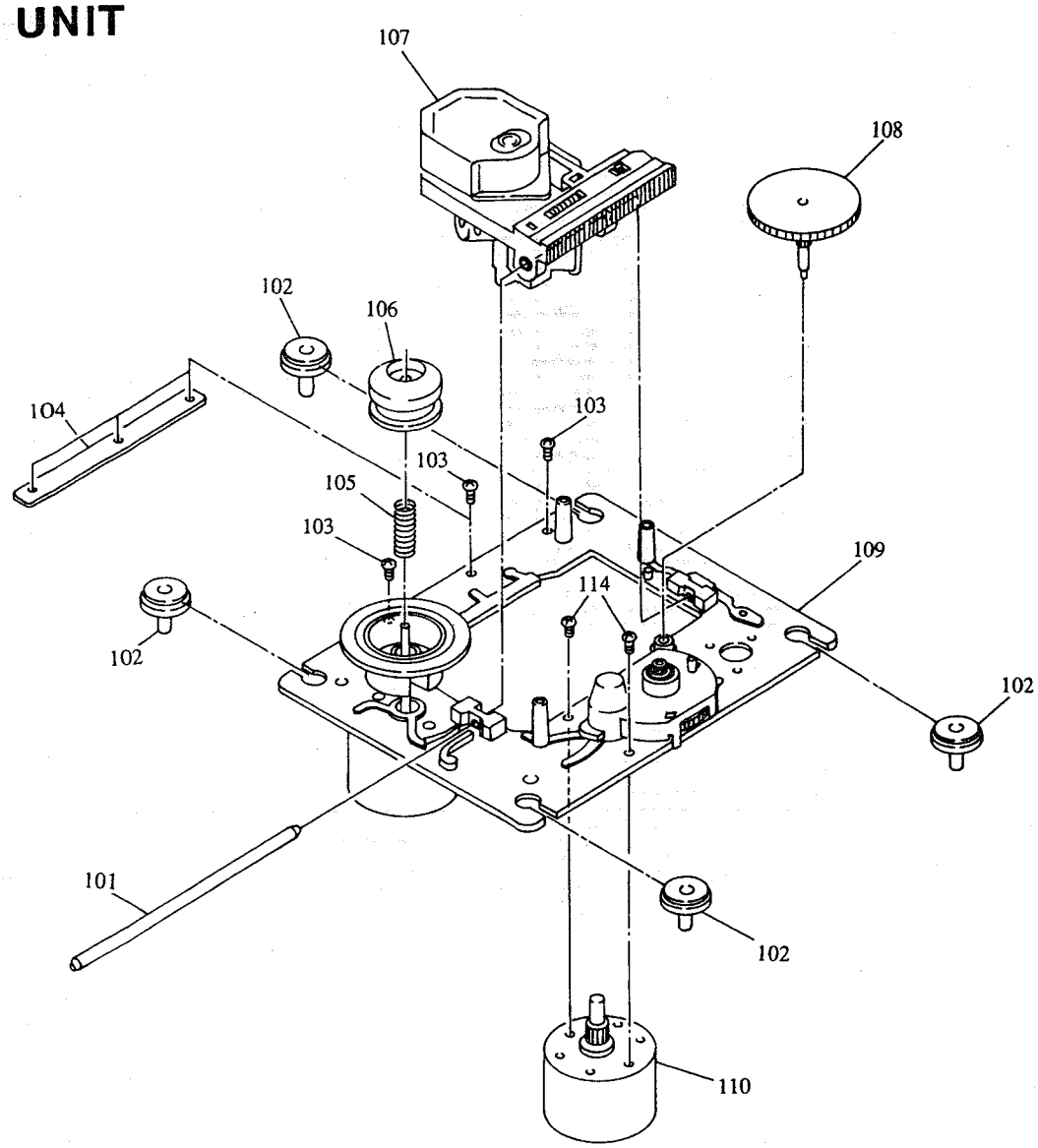


PARTS LIST

REF.NO.	PART NO.	DESCRIPTION
1	24840060	Tray
2		Stopper
3	24822014	Gear cover
4	24810020	Tray gear
5	24840061	Chucking plate
6		2.6TTW+7B,Self-tapping screw
7	24830003	Chucking yoke
8	24832004	Magnet
9	24836013	Damper
10	24810024	Chucking P
11	24802012	Sub chassis
12	24820023	Spring
13	24840062	Screw with washer
14		KSM-2401,Pickup drive unit
15	24840075	CD servo pc board ass'y
17	24802013	Main chassis
18		2.6TTW+16B,Self-tapping screw
19	24810021	Drive gear
20	24840063	Control cam

REF.NO.	PART NO.	DESCRIPTION
21	24840064	Leafswitch
22	25055369	NPLG-5P352,Plug
23	24840066	Loading motor pc board
24	24840067	Loading motor
25	24810022	Middle gear
26	24810025	Loading
27	24816008	Belt
28		2.6B+2.5F,Screw
101	24828006	Sled shaft
102	24836014	Insulator
103	24840068	2×5,Special screw
104	24822015	Plate S
105	24820024	Spring
106	24824003	Center ring
107	24110011	KSS-240A,Optical pickup
108	24810023	Wheel
109	24802014	Chassis
110	24804012	Motor gear ass'y
114	82112003	2P+3FN,Pan head screw

DRIVE UNIT



REMOVEMENT OF TRAY ASS'Y

Remove the top cover.

Turn the locked screw to the clockwise to release the lock of gear.(Refer fig.1)

Pull out the tray ass'y.

Remove the stopper.(Refer fig.2)

Press the tray stopper to the arrow mark direction and remove the tray ass'y.

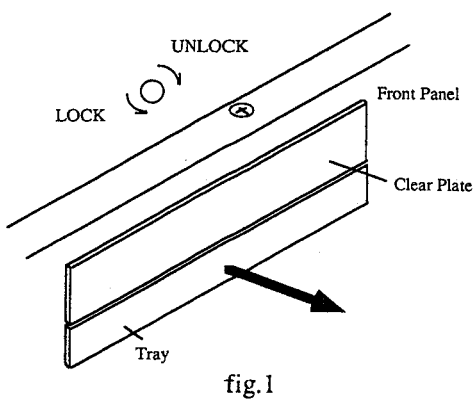


fig.1

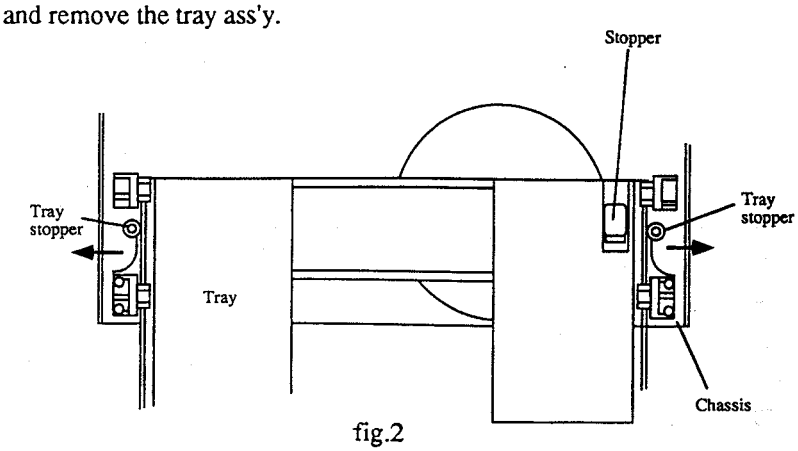
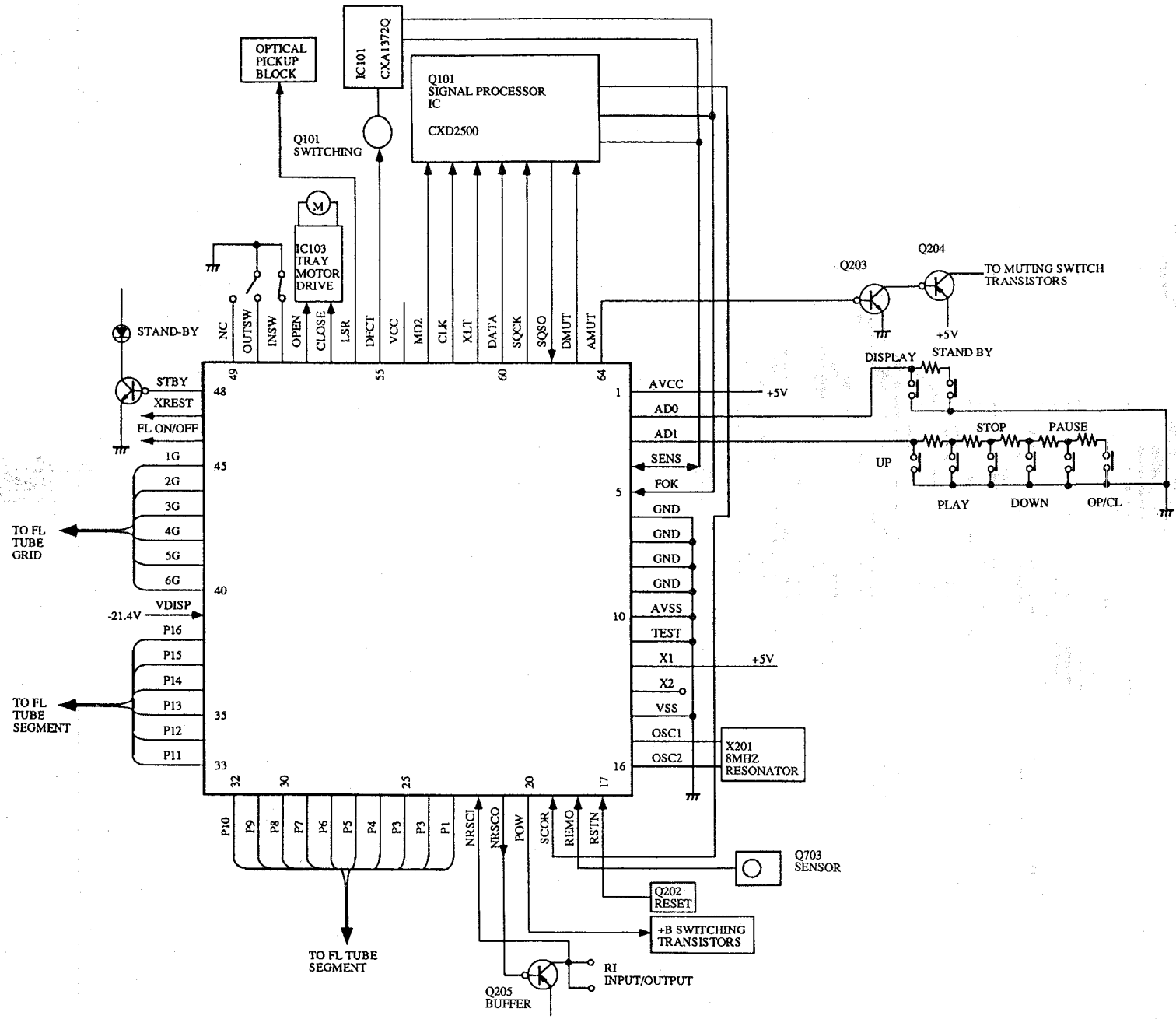


fig.2

MICROPROCESSOR CONNECTION DIAGRAM

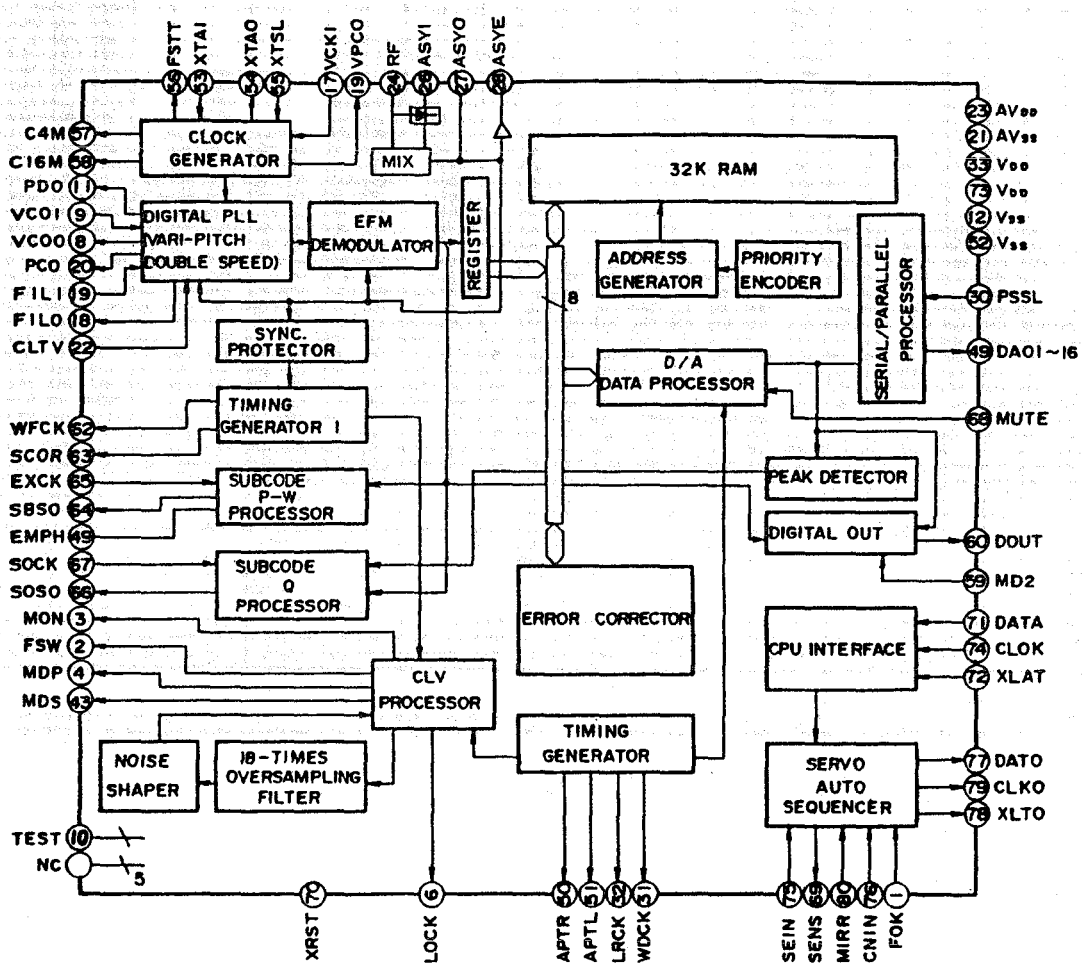


MICROPROCESSOR TERMINAL DESCRIPTION

PIN.NO.	SYMBOL	I/O	DESCRIPTION	PIN.NO.	SYMBOL	I/O	DESCRIPTION
1	AVCC		Power supply terminal. 5V	33	P11	O	FL tube segment output.
2	AD0	I	Key input terminal.	34	P12	O	FL tube segment output.
3	AD1	I	Key input terminal.	35	P13	O	FL tube segment output.
4	SENS	I	Sense input from signal processor.	36	P14	O	FL tube segment output.
5	FOK	I	Focus OK input.	37	P15	O	FL tube segment output.
6	GND		Ground terminal.	38	P16	O	FL tube segment output.
7	GND		Ground terminal.	39	VDISP	I	Negative power supply terminal for FL tube.
8	GND		Ground terminal.	40	6G	O	FL tube grid output.
9	GND		Ground terminal.	41	5G	O	FL tube grid output.
10	AVSS		Ground terminal.	42	4G	O	FL tube grid output.
11	TEST		Test terminal	43	3G	O	FL tube grid output.
12	X1		Not used.(Connect the power supply 5V)	44	2G	O	FL tube grid output.
13	X2		Not used.(Open)	45	1G	O	FL tube grid output.
14	VSS		Ground terminal.	46	FL ON/OFF	O	FL Tube ON/OFF control output.
15	OSC1		Connect the 8 MHz ceramic resonator.	47	XRST	O	Reset output.
16	OSC2		Connect the 8 MHz ceramic resonator.	48	STBY	I	STAND-BY indicator output
17	RSTN	I	Reset terminal. H when power turns on.	49	NC		Not used.(Open)
18	REMO	I	Remote control sensor input	50	OUTSW	I	Tray open operation completion signal.
19	SCOR	I	Synchronizing signal detection of sub code frame.	51	INSW	I	Tray close operation completion signal.
20	POW	O	Power supply control output.On at H.	52	OPEN	O	Tray open/close control output.
21	NRSCO	O	NRSC output.	53	CLOSE	O	Tray open/close control output.
22	NRSCI	I	NRSC input.	54	LSR	O	Laser control output.On at low level.
23	P1	O	FL tube segment output.	55	DFCT	O	Defect control output terminal.
24	P2	O	FL tube segment output.	56	VCC	O	Power supply terminal. 5V
25	P3	O	FL tube segment output.	57	MD2	O	Inhibiting signal of digital output of signal processor.
26	P4	O	FL tube segment output.	58	CLK	O	Serial transfer clock of command to signal processor IC.
27	P5	O	FL tube segment output.	59	XLT	O	Serial transfer latch to signal processor IC.
28	P6	O	FL tube segment output.	60	DATA	O	Serial data output of command to signal processor IC.
29	P7	O	FL tube segment output.	61	SQCK	O	Serial transfer clock of sub code Q to signal processor IC.
30	P8	O	FL tube segment output.	62	SQSO	I	Serial data input of sub code Q from signal processor IC.
31	P9	O	FL tube segment output.	63	DMUT	O	Muting control signal.Active H.
32	P10	O	FL tube segment output.	64	AMUT	O	Muting control signal.Active H.

IC BLOCK DIAGRAMS AND DESCRIPTIONS

CXD2500AQ (Digital Signal Processor)

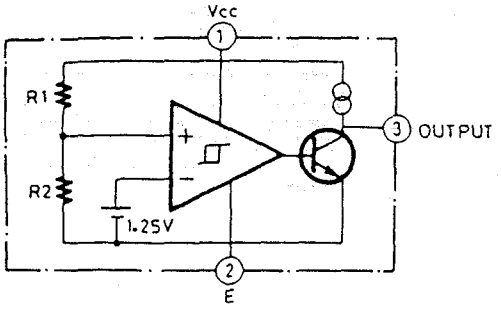


NO.	SYMBOL	I/O	DESCRIPTION	
1	FOK	I	Foucs Ok input	
2	FSW	O	Output filter changeover output for spindle motor	
3	MON	O	Spindle motor control output	
4	MDP	O	Spindle motor servo control	
5	MDS	O	Spindle motor servo control	
6	LOCK	O	H when GFS is the high level	
7	NC			
8	VCOO	O	Oscillation circuit output for analog EFM PLL.	
9	VCOI	I	Oscillation circuit input for analog EFM PLL. (8.6436MHz)	
10	TEST	I	Test terminal	
11	PDO	O	Charge pump output analog EFM PLL	
12	Vss		Ground terminal	
13-15	NC			
16	VPCO	O	PLL charge pump output for variable pitch	
17	VCKI	I	Clock input for variable pitch from VCO (16.934MHz)	
18	FILO	O	Filter output for master PLL.	
19	FILI	I	Filter input for master PLL.	
20	PCO	O	Charge pump output of master PLL	
21	AVss		Analog ground	
22	CLTV	I	VCO control voltage input for master	
23	AVDD		Analog section power supply (+5V)	
24	RF	I	EFM signal input	
25	BIAS	I	Asymmetry circuit constant current input	
26	ASYI	I	Asymmetry comparator voltage input	
27	ASYO	O	EFM full swing output	
28	ASYE	I	Asymmetry control circuit	
29	NC			
30	PSSL	O	Audio data output mode changeover input Serial data at L and paraller data at H.	
31	WDCK	I	D/A interface for 48 bits slot. Word clock f=2Fs.	
32	LRCK	I	D/A interface for 48 bits slot. LR clock f=Fs.	
33	VDD		Power supply terminal (+5V)	
34-49			Data output terminals	
			PSSL=1	PSSL=0
34	DA16	O	DA16	Serial data of 48 bits slot
35	DA15	O	DA15	Bit clock of 48 bits slot
36	DA14	O	DA14	Serial data of 64 bits slot
37	DA13	O	DA13	Bit clock of 68 bits slot
38	DA12	O	DA12	LR clock of 68 bits slot
39	DA11	O	DA11	GTOP output
40	DA10	O	DA10	XUGF output
41	DA09	O	DA09	XPLCK output

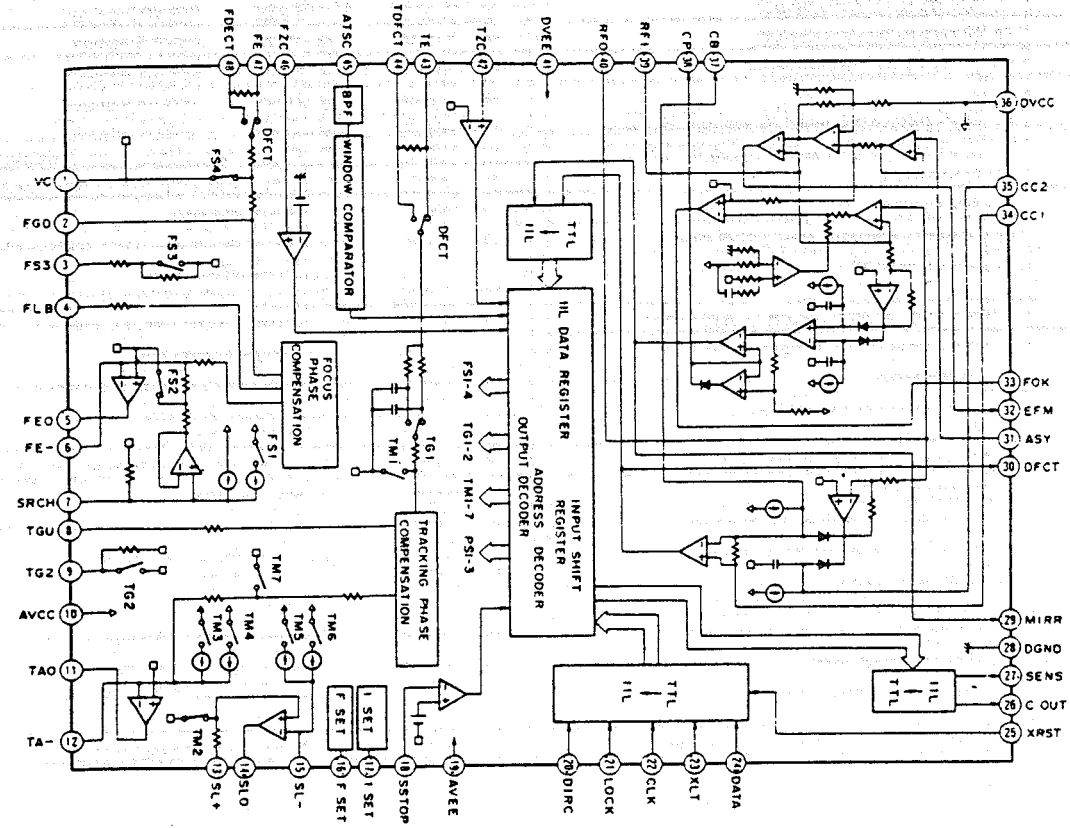
NO.	SYMBOL	I/O	DESCRIPTION	
42	DA08	O	DA08	GFS output
43	DA07	O	DA07	RFCK output
44	DA06	O	DA06	C2PO output
45	DA05	O	DA05	XRAOF output
46	DA04	O	DA04	MNT 3 output
47	DA03	O	DA03	MNT 2 output
48	DA02	O	DA02	MNT 1 output
49	DA01	O	DA01	MNT 0 output
50	APTR	O	Control output for aperture correction. H when R ch.	
51	APTL	O	Control output for aperture correction. H when L ch.	
52	Vss		Ground terminal	
53	XTAI	I	Crystal oscillation circuit input of 16.9344MHz or 33.8688MHz input.	
54	XTAO	O	Crystal oscillation circuit output of 16.9344MHz.	
55	XTSL	I	Crystal selection input terminal. L when 16.9344MHz. H when 33.8688MHz.	
56	FSTT	O	2/3 divided output of pins 53 and 54.	
57	C4M	O	4.2336 MHz output	
58	C16M	O	16.9344 MHz output	
59	MD2	I	Digital output control input. On at high level.	
60	DOUT	O	Digital output	
61	EMPH	O	Emphasis control output. Active high.	
62	WFCK	O	Write frame clock output	
63	SCOR	O	Sub-code detection output. H when is detected SO or SI.	
64	SBSO	O	Serial output of sub-code (P~W)	
65	EXCK	I	Clock input for read out SQSO.	
66	SQSO	O	Sub Q 80 bits, PCM peak, and level data 16 bits output.	
67	SQCK	I	Clock input for read out SQSO	
68	MUTE	O	Muting control output. Active H.	
69	SENS		Sens output. Output to the microprocessor	
70	XRST	I	System reset. Reset at the low level.	
71	DATA	I	Serial data input from the microprocessor.	
72	XLTA	I	Latch input from the microprocessor. Latch the serial data at the trailing.	
73	VDD		Power supply treminal	
74	CLOK	I	Serial data transfer clock input from microprocessor	
75	SEIN	I	Sens input from SSP	
76	CNCI	I	Track jump numbers count signal input	
77	DATO	O	Serial data output to SSP	
78	XLTO	O	Serial data latch output to SSP. Latch at trailing.	
79	CLKO	O	Serial data transfer clock output to SSP.	
80	MIRR	I	Mirror signal input	

Note: SSP: IC101 CXA1372Q

M51943ASL (Rest IC)



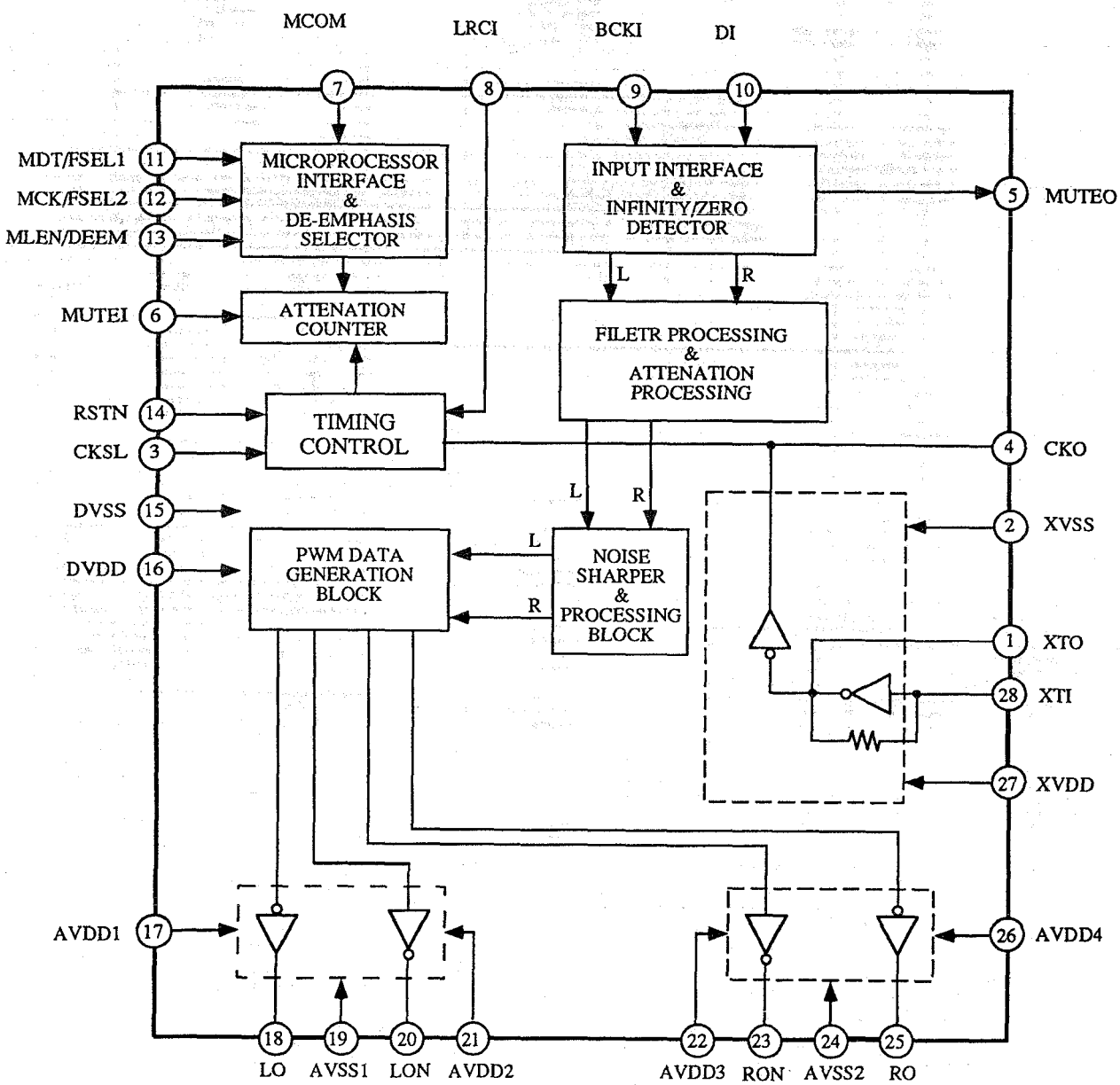
CXA1372Q (Servo Signal Processor)



PIN NO.	SYMBOL	I/O	DESCIRPION
1	VC	I	Mid-point voltage input terminal.
2	FGD	I	Connect the capacitor between FS3 and this pin when the high frequency gain focus servo is dropped.
3	FS3	I	Focus servo high frequency gain changeover input terminal.
4	FLB	I	Input terminal for the low frequency boost of focus servo.
5	FEO	O	Focus drive output terminal.
6	FE-	I	Inversion input terminal of focus amplifier.
7	SRCH	I	Time constant terminal to make the focus search waveform.
8	TGU	I	Tracking high frequency changeover input terminal.
11	TAO	O	Tracking drive output terminal.
12	TA-	I	Inversion input terminal of tracking amplifier.
13	SL+	I	No-inversion input terminal of sled amplifier.
14	SLO	O	Sled drive output terminal.
15	SL-	I	Inversion input terminal of sled amplifier.
16	FSET	I	Peak setting input of phase correction of focus tracking.
17	ISET	I	This terminal is flowed the current so that the focus search,tarcking jump,and sled kick height is decided.
18	SSTOP	I	Inner switch selection input terminal.
20	DIRC	I	This terminal is used when track jump.
21	LOCK	I	The sled runaway prevention circuit operates at the low level.
22	CLK	I	Serial data transfer clock input from microprocessor.

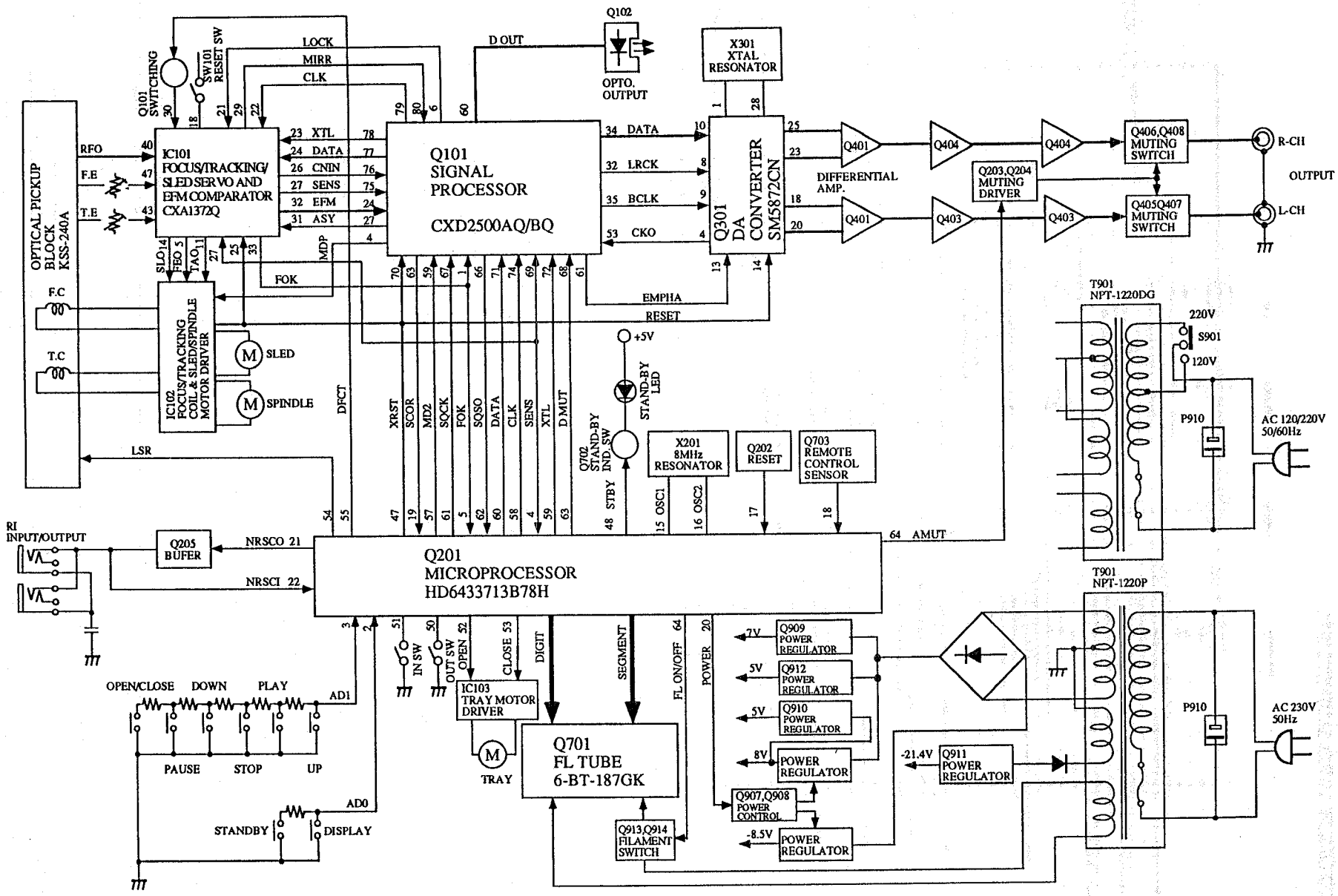
PIN NO.	SYMBOL	I/O	DESCIRPION
23	XLT	I	Latch input terminal for microprocessor.
24	DATA	I	Serial data input terminal for microprocessor.
25	XRST	I	Reset input terminal.Active low.
26	C.OUT	O	Signal output to count the track numbers.
27	SENS	O	This terminal outputs FZC,and SSTOP to according command from the microprocessor.
29	MIRR	O	Mirror comparator output terminal.
30	DFCT	O	Defect comparator output terminal.
31	ASY	I	Auto asymmetry control input terminal.
32	EFM	O	EFM comparator output terminal.
33	FOK	O	Focus OK comparator output terminal.
34	CC1	O	Defect bottom hold output terminal.
35	CC2	I	Defect bottom hold input terminal from CC1.
37	CB	I	Defect bottom hold capacitor connection terminal.
38	CP	I	Mirror hold capacitor connection terminal.
39	RFI	I	RF summing amplifier input terminal.
40	RFO	O	RF summing amplifier output terminal.
42	TZC	I	Tracking zero-cross comparator input terminal.
43	TE	I	Tracking error input terminal.
44	TDFCT	I	Capacitor connection terminal for time constant when defect.
45	ATSC	I	Window comparator input terminal for ATSC detection.
46	FZC	I	Focos zero-cross comparator input terminal.
47	FE	I	Focus error input terminal.
48	FDFCT	I	Capacitor connection terminal for time constant when defect.

SM5872CN (D/A Converter)



Pin No.	Terminal	I/O	Function	Pin No.	Terminal	I/O	Function
1	XTO	O	Resonator section	28	XTI	I	Resonator section
2	XVSS		Ground for resonator system	27	XVDD		5V for resonator system
3	CKSL	I		26	AVDD4		5V for analog section
4	CKO	O	Output clock of resonator section: 384fs	25	RO	O	R ch PWM output (+)
5	MUTEO	O	Infinity zero detector output	24	AVSS2		Ground for analog section
6	MUTEI	I	Muting output	23	RON	O	R ch PWM output (-)
7	MCOM	I	Interface switching control	22	AVDD3		5V for analog section
8	LRCI	I	Sampling rate clock of input data: H=L ch, L=R ch	21	AVDD2		5V for analog section
9	BCKI	I	Bit clock of input data	20	LON	O	L ch PWM output (+)
10	DI	I	Input data	19	AVSS1		Ground for analog section
11	FSEL1	I	Sampling frequency=44.1 kHz	18	LO	O	L ch PWM output (-)
12	FSEL2	I	When FSEL1,FSEL2, and MCOML are the low level.	17	AVDD1		5V for analog section
13	DEEM	I	De-emphasis control input	16	DVDD		5V for digital section
14	RSTN		System reset: L=Reset	15	DVSS		Ground for digital section

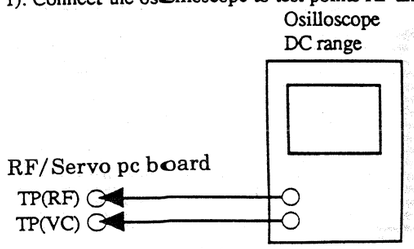
BLOCK DIAGRAM



ADJUSTMENT PROCEDURES

It is not necessary to perform the adjustment of optical pickup.
This confirmation should be made when replacing the optical pickup.

1). Connect the oscilloscope to test points RF and VC.



2). Turn the power switch on.
3). Load the test disc YEDS-18 on the tray and press the play button.
4). Confirm that the waveform on the oscilloscope is optimum eye pattern and optimum level as shown photo 1.
Optimum eye pattern means that shape "◇" can be clearly distinguished at the center of the waveform.

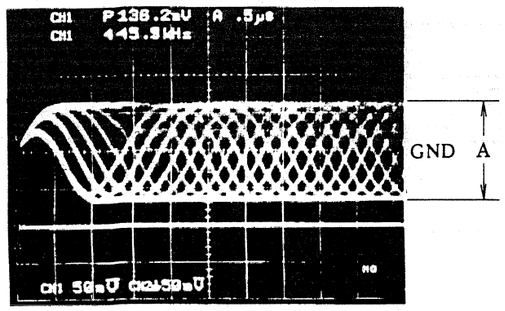


Photo 1

A=1.2±0.3Vp-p

REFERENCE

Focus/Tracking Gain Adjustment

A frequency response analyzer is necessary in order to perform this adjustment exactly.

However, this gain has a margin, so even if it is slightly off, there is no problem. Therefore, do not perform this adjustment.

Focus/tracking gain determines the pick-up follow-up (vertical and horizontal) relative to mechanical noise and mechanical shock when the 2-axis device operate.

However, as these reciprocate, the adjustment is at the point where both are satisfied.

- When gain is raised, the noise when the 2-axis device operates increases.
- When gain is lowered, it is more susceptible to mechanical shock and skipping occurs more easily.
- When gain adjustment is off, the symptoms below appear.

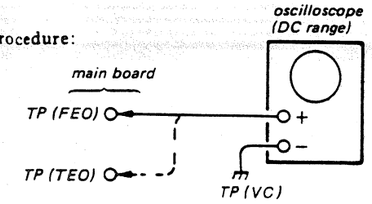
Symptoms \ Gain	Focus	Tracking
• The time until music starts becomes longer for STOP →▷PLAY or automatic selection (⏮ ⏭buttons pressed. (Normally takes about 2 seconds.)	low	low or high
• Music does not start and disc continues to rotate for STOP→▷PLAY or automatic selection (⏮ ⏭ buttons pressed.)	–	low
• Sound is interrupted during PLAY. Or time counter display stops progressing.	–	low
• More poise during 2-axis device operation.	high	high

The following is a simple adjustment method.

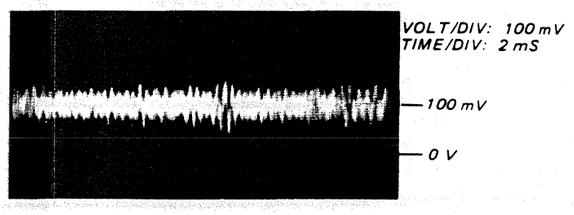
– Simple Adjustment –

Note: Since exact adjustment cannot be performed, remember the positions of the controls before performing the adjustment. If the positions after the simple adjustment are only a little different, return the controls to the original position.

Procedure:

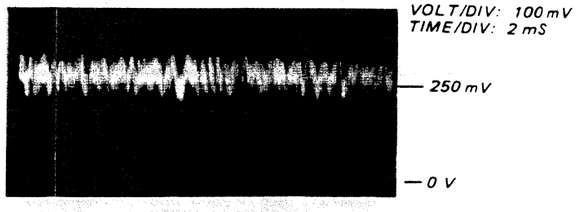


1. Keep the set horizontal.
(If the set is not horizontal, this adjustment cannot be performed due to the gravity against the 2 axis device.)
2. Insert disc (YEDS-18) and press ▷PLAY button.
3. Connect oscilloscope to RF/Servo board TP (FE).
4. Adjust RV102 so that the waveform is as shown in the figure below. (focus gain adjustment)

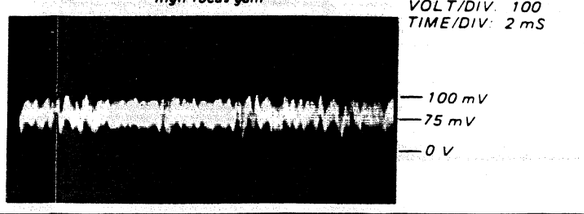


- Ircorrent Examples (DC level changes more than on adjusted waveform)

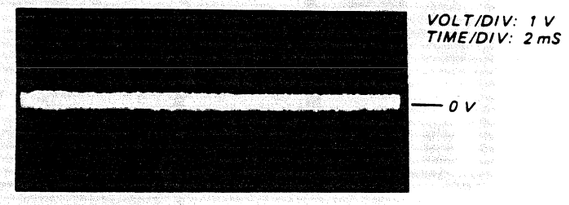
low focus gain



high focus gain

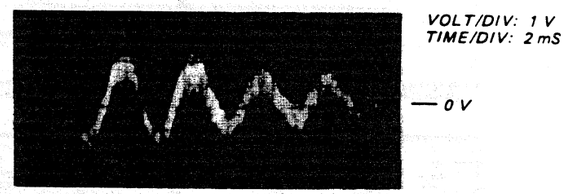


5. Connect oscilloscope to RF/Servo board TP (TE).
6. Adjust RV101 so that the waveform is as shown in the figure below. (tracking gain adjustment)

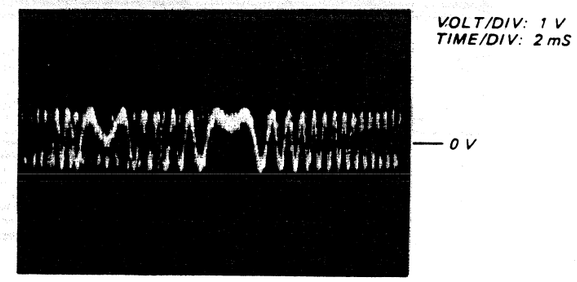


- Incorrect Examples (fundamental wave appears)

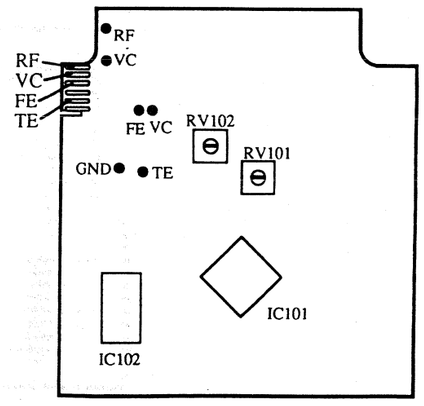
low tracking gain



high tracking gain
(higher fundamental wave than for low gain)

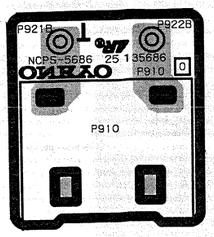


Adjustment Location: RF/Servo board

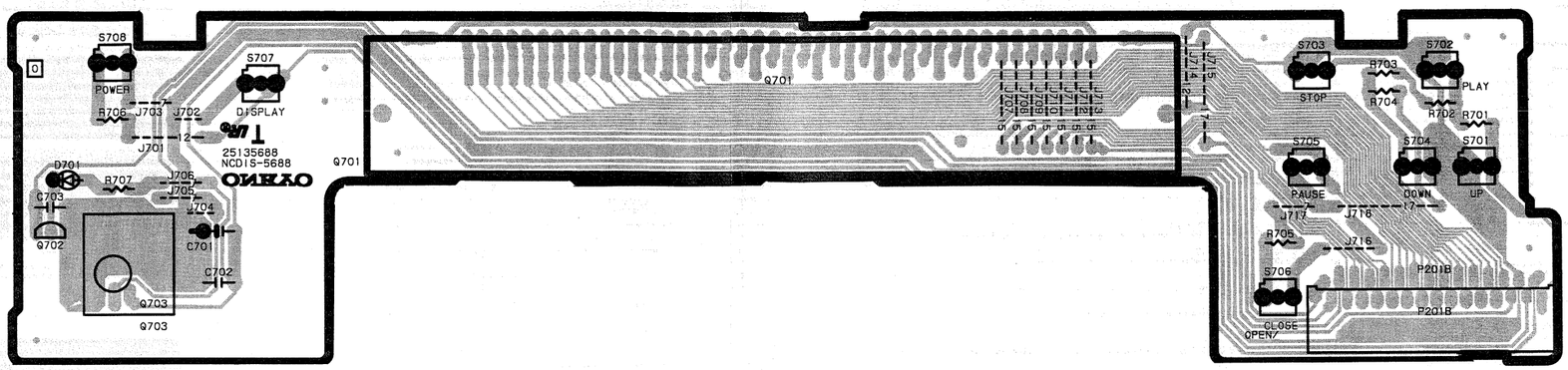


PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE

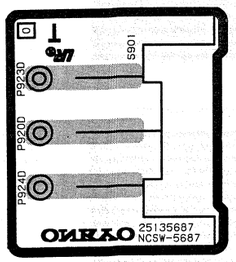
NAPS-5686



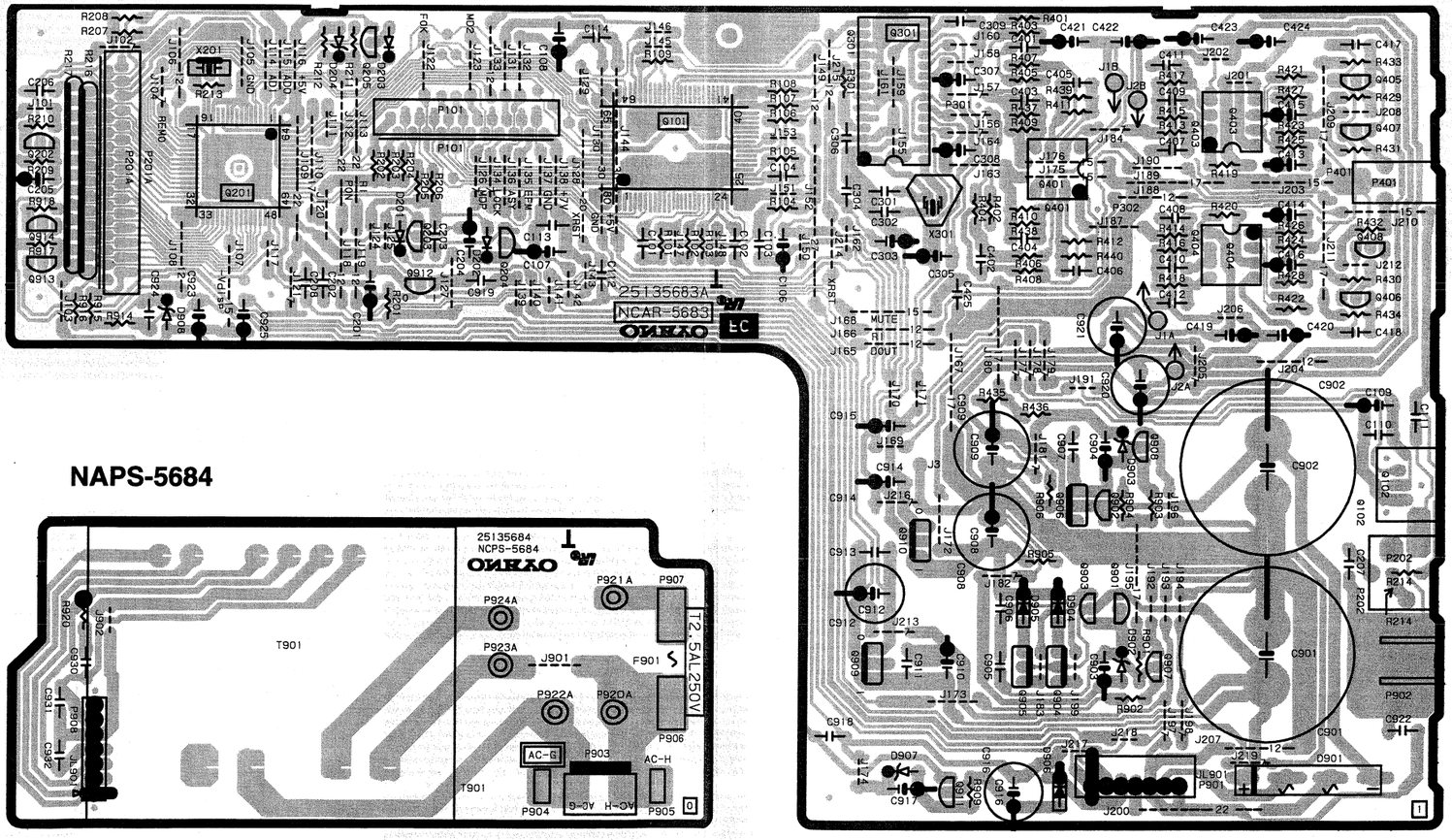
NADIS-5688



NASW-5687

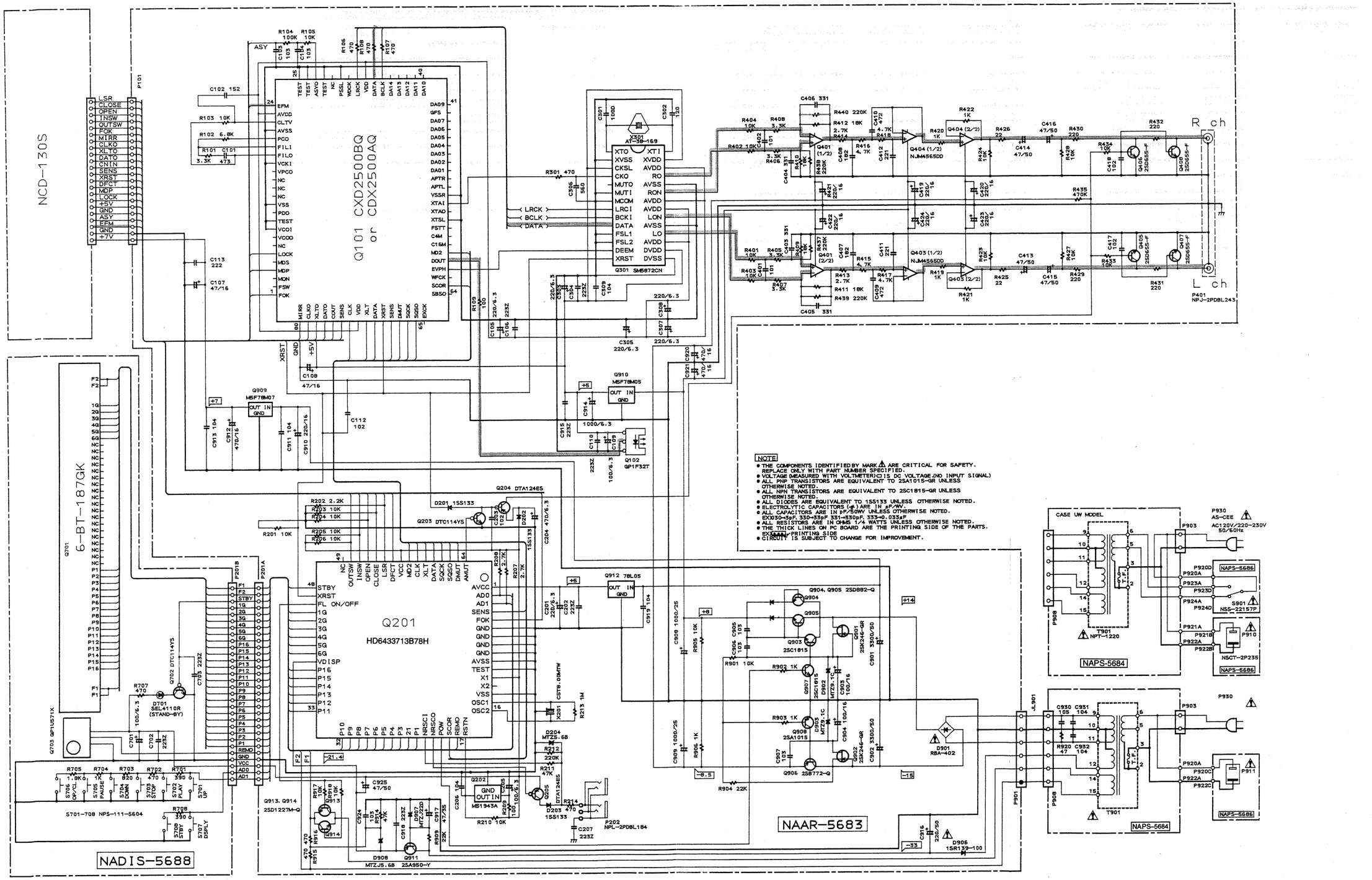


NAAR-5683



NAPS-5684

SCHEMATIC DIAGRAM


NCD-130S
6-BT-187GK
NADIS-5688
NAAR-5683
NAPS-5684
NAPS-5686
Q101 CXD2500BQ or CDX2500AQ
Q201 HD6433713B78H
Q301 SM5872CN
NOTE
• THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFIED.
• VOLTAGE (MEASURED WITH VOLTMETER) Ⓒ IS DC VOLTAGE (NO INPUT SIGNAL)
• ALL PNP TRANSISTORS ARE EQUIVALENT TO 2SA1015-GR UNLESS OTHERWISE NOTED.
• ALL NPN TRANSISTORS ARE EQUIVALENT TO 2SC1815-GR UNLESS OTHERWISE NOTED.
• ALL DIODES ARE EQUIVALENT TO 1SS133 UNLESS OTHERWISE NOTED.
• ELECTROLYTIC CAPACITORS (◢) ARE IN μF/WV.
• ALL CAPACITORS ARE IN pF/50WV UNLESS OTHERWISE NOTED. EX)330→3pF, 330→33pF 331→330pF, 333→0.033μF
• ALL RESISTORS ARE IN OHMS 1/4 WATTS UNLESS OTHERWISE NOTED.
• THE THICK LINES ON PC BOARD ARE THE PRINTING SIDE OF THE PARTS. EX) PRINTING SIDE
• CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.
R Ch
L Ch
CASE UW MODEL
P930 AS-CEE ⚠ AC120V/220-230V 50/60Hz
S901 ⚠ NSS-22157P
T901 ⚠ NPT-1220
P901 RBA-402
NSCT-2P235
P401 NPJ-2PDBL243

ONKYO CORPORATION

PRINTED CIRCUIT BOARD – PARTS LIST

MAIN CIRCUIT PC BOARD (NAAR-5683-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICS	
Q101	22240487A or	CXD2500BQ or
	22240487	CXD2500AQ
Q201	22241003	HD6433713B78H
Q202	22240018	M51943A
Q301	22240726 or	SM5872CN or
	22240726-1	SM5872CN
Q401	222956	NJM2068D-D
Q403,Q404	22240191	NJM4565D-D
Q909	222780075MIT	M5F78M07L
Q910	222780055MIT	M5F78M05L
Q912	222780053	78L05
	TRANSISTORS	
Q203	2213570 or	RN1207 or
	221281 or	DTC114YS or
	2214930	UN4214
Q204,Q205	2212600	DTA124ES
Q405-Q408	2211706	2SD655-F
Q901,Q902	2211945	2SK246-GR
Q903,Q907	2213284 or	2SC1740S-R or
	2211183 or	2SC1740-R or
	2214281	2SC1815-GR
Q904,Q905	2201285	2SD882-Q
Q906	2201275	2SB772-Q
Q908	2213354 or	2SA933S-R or
	2213074 or	2SA933-R or
	2211455	2SA1015-GR
Q911	2211504 or	2SA950-Y or
	2211503	2SA950-O
Q913,Q914	2211164	2SC2120-Y
	OPTICAL MODULE	
Q102	24120038	GP1F32T
	DIODES	
D201,D202,D203	223222 or	WG713A or
	223205 or	1SS270A or
	223163	1SS133
D204,D908	224470562	MTZJ5.6B, Zener
D901	22380048	RBA-402
D902,D903	224470913	MTZJ9.1C, Zener
D904,D905,D906	22380035 or	GP104003E or
	22380032	1SR139-100
D907	224472204	MTZJ22D, Zener
	CERA LOCK,XRYSTAL	
X201	3010190	CST8.00MTW
X301	3010159	AT-38-169
	CAPACITORS	
C101	374724734	ECQ-V50V, 473J, TF C
C102	374721524	ECQ-B50V, 152J, TF C
C103,C104,C905, C906,C907,C924	374721034	ECQ-B50V, 103J, TF C
C106,C108,C109, C205	393321017	CE04W6.3V, 100M, VX C
C107	393344707	CE04W16V, 47M, VX C
C113	374722224	ECQ-B50V, 222J, TF C
C201,C204,C915	393324717	CE04W6.3V, 470M, VX C
C203	374721024	ECQ-B50V, 102J, TF C
C206,C304,C309, C911,C913,C919	374721044	ECQ-V50V, 104J, TF C
C303,C305,C307, C308	393322217	CE04W6.3V, 220M, VX C
C401,C402	373301014	PP09 125V, 101J, PP C
C403-CC406	373303314	PP09 125V, 331J, PP C
C407,C408	374721824	ECQ-B50V, 182J, TF C
C409,C410	374724724	ECQ-B50V, 472J, TF C
C411,C412	373302214	PP09 125V, 221J, PP C
C413-C416,C925	393384707	CE04W50V, 47M, VX C
C419,C420,C423, C424	393342217	CE04W16V, 220M, VX C
C422,C910	393361017	CE04W35V, 100M, VX C
C901,C902	3504275	CE69W50V, 3300M, ELECT C
C903,C904	393341017	CE04W16V, 100M, VX C
C908,C909	393351027	CE04W25V, 1000M, VX C
C912,C920,C921	393344717	CE04W16V, 470M, VX C
C916	393382217	CE04W50V, 220M, VX C
C917,C923	393364707	CE04W35V, 47M, VX C
	SOCKETS	
P101	25050962 or	NSCT-22P749 or
	25050854	NSCT-22P649
P201A	25050970 or	NSCT-30P757 or
	25050862	NSCT-30P657
P901	25050271	NSCT-7P99
	TERMINALS	
P202	25045330	NPJ-2PDBL184, JACK
P401	25045418	NPJ-2PDBL243, PIN JACK
	OTHERS	
E301	27190751	HOLDER
JL901	7J100606H	JUMPER LEAD
P902	25065425	SCREW TRMM3

POWER TRANSFORMER PC BOARD (NAPS-5684-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
	CAPACITORS	
C930	374491054	MKS92-63V, 105J, MKS C
C931,C932	374721044	ECQ-V50V, 104J, TF C
	RESISTOR	
R920	443524704	RS1/2WBJ, 47, METAL O R
	OTHERS	
P903	⚠ 25055675	NPLG-2P631, SOCKET
P908	25051111	NSCT-7P898, WIRE HOLDER
P906,P907	25050065	YSH403T, FUSE HOLDER

AC OUTLET TERMINAL PC BOARD (NAPS-5686-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
P910	⚠ 25050410	NSCT-2P235, AC OUTLET

VOLTAGE SELECTOR PC BOARD (NAPS-5687-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
S901	⚠ 25065437	NSS-22157P, SLIDE SW <W>

DISPLAY CIRCUIT PC BOARD (NADIS-5688-1)

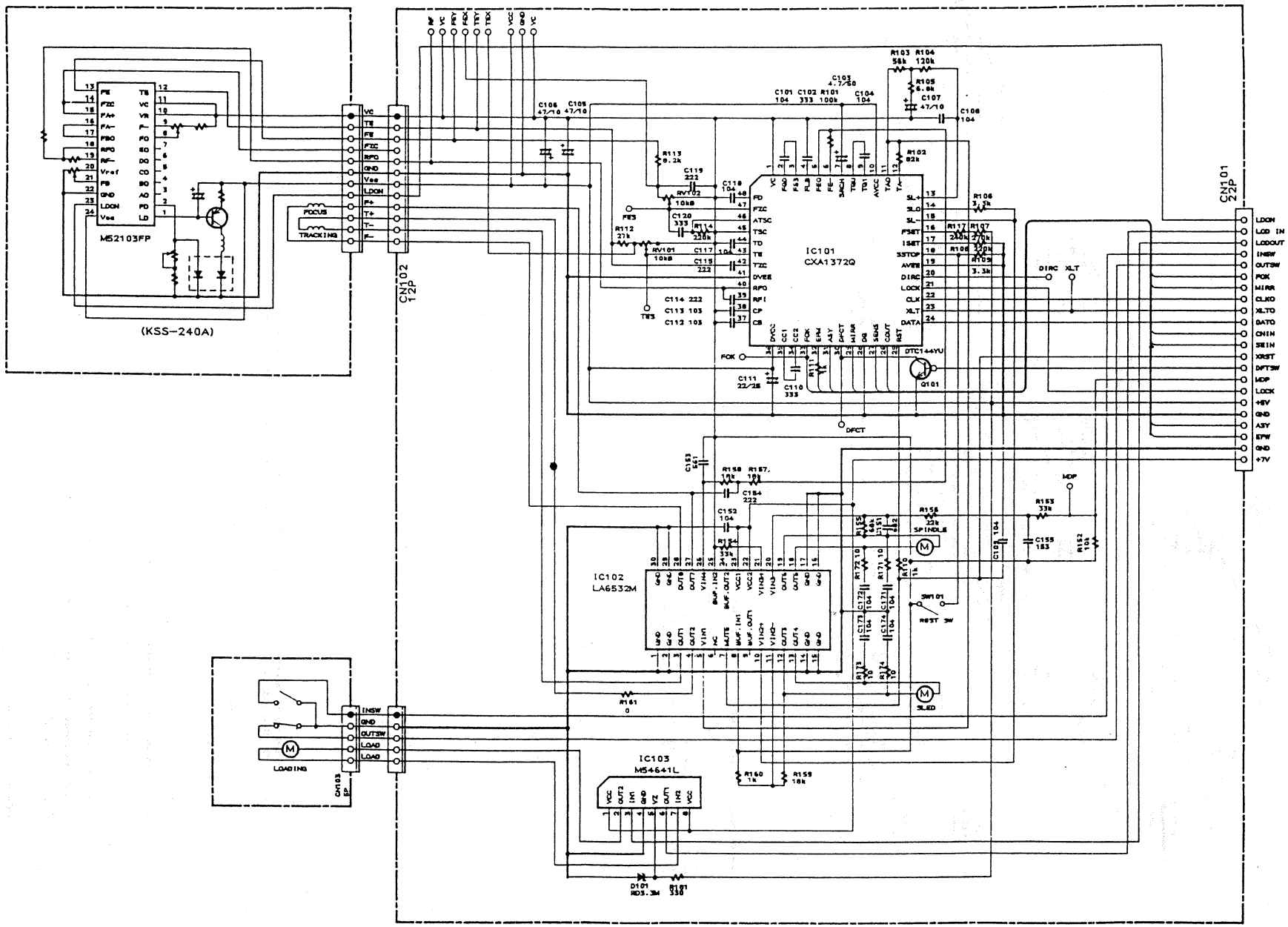
CIRCUIT NO.	PART NO.	DESCRIPTION
	FL TUBE	
Q701	212124	6-BT-187GK
	TRANSISTOR	
Q702	2213570 or	RN1207 or
	221281 or	DTC114YS or
	2214930	UN4214
	REMOTE SENSOR	
Q703	24130007	GP1U571X
	LED	
D701	225290	SEL4110R
	OTHERS	
C701	355721019	CE04W6.3V, 100M, ELECT C
E701	27190929	HOLDER(FL TUBU)
P201B	25050936 or	NSCT-30P723, SOCKET or
	25050894	NSCT-30P689, SOCKET
S701-S708	25035652	NPS-111-S604, PUSH SW

<W> : Worldwide model only

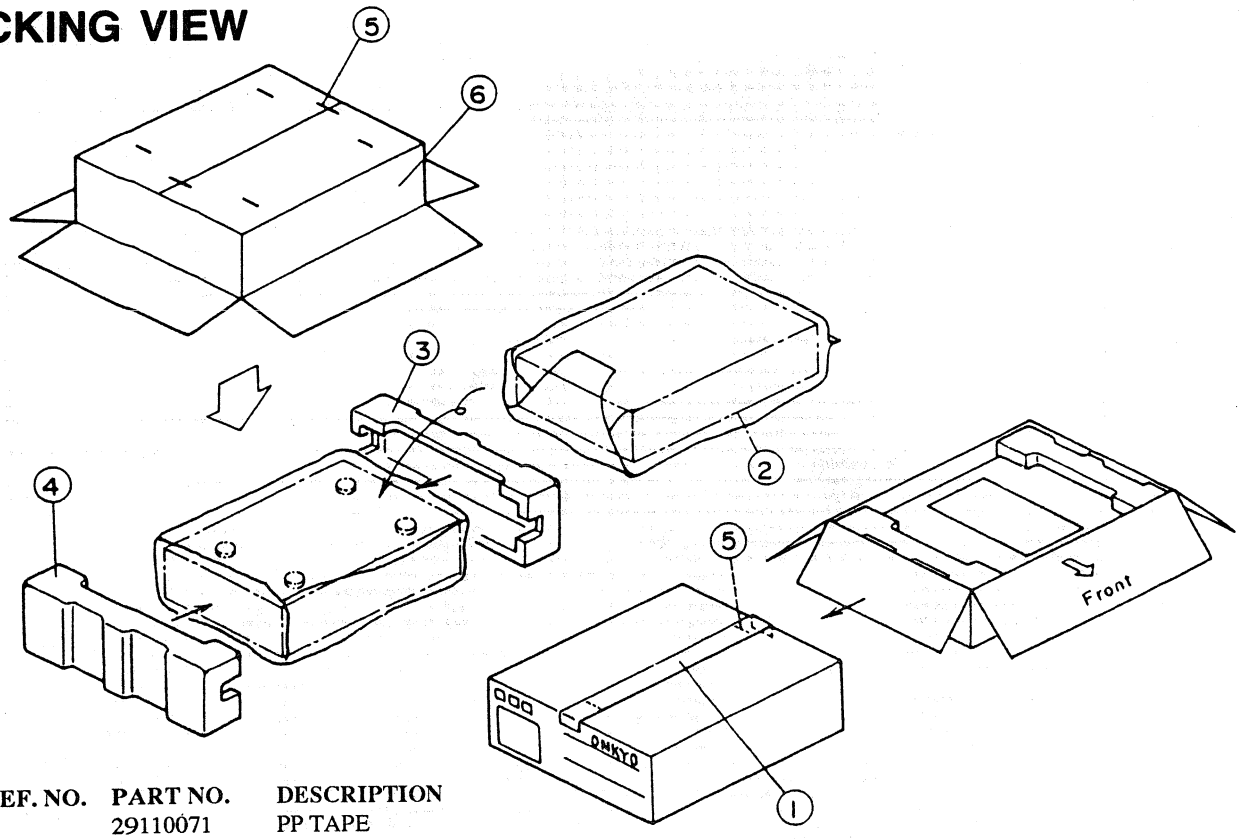
NOTE: THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

SCHEMATIC DIAGRAM

MECHANISM BLOCK



PACKING VIEW



REF. NO.	PART NO.	DESCRIPTION
1	29110071	PP TAPE
2	29100037-1AY	650x500, POLY BAG
3	29091641B	(R), PAD
4	29091640B	(L), PAD
5	282321	STAPLE
6	29052997A	CARTON <S>
	29052998A	CARTON <B>
	29360404	SN SHEET
	29360687	(CLASS 1), LABEL
	Accessary bag ass'y	
	29100097-1AY	350X250, POLY BAG
	2010098A or 2010326Y	PIN CORD AS
	2010200	3.5MINI PLUG, CORD AS
	25055040	CV-K-2, CONVERSION PLUG <W>
	29342296	E(C-722), INSTRUCTION MANUAL
	29342297	U6(C-722), INSTRUCTION MANUAL <P>
	29342298	U3(C-722), INSTRUCTION MANUAL <except P>

NOTE:
<S> Silver model only
<B> Black model only
<W> Worldwide model only
<P> European model only

ONKYO CORPORATION

International Sales Div. : 31 Sankyo-bild. 3-8-5, Asakusabashi, Taito-ku, TOKYO 111, JAPAN
TEL : 03-5820-5865 FAX : 03-5820-5869

ONKYO U.S.A. CORPORATION
200 Williams Drive, Ramsey, N.J. 07446, U.S.A.
TEL : 201-825-7950 FAX : 201-825-8150

ONKYO EUROPE ELECTRONICS GmbH
Industriestrasse 18-20, 82110 Germering, GERMANY
TEL : 089 84 93 20 FAX : 089 84 93 226

ONKYO FRANCE
Immeuble Le Diamant, Domaine Technologique de Saclay, 4 Rue Rene Razel, 91892 SACLAY, FRANCE
TEL : (1) 69 33 14 00 FAX : (1) 69 41 35 84

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